

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No. PCT/DE 03/00330

I. Basis of the report

1. This report has been drawn on the basis of (Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17)):

The description, pages:

1-7 as originally filed

The claims, Nos.:

1-5 received on July 10, 2004 with the letter of July 6, 2004

The drawings, sheets/fig.:

1/2, 2/2 as originally filed

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N) Yes: Claims 1-5
No: Claims

Inventive Step (IS) Yes: Claims 1-5
No: Claims

Industrial Applicability (IA) Yes: Claims 1-5
No: Claims

2. CITATIONS AND EXPLANATIONS

see appended sheet

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SUPPLEMENTARY PAGE

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With respect to point V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. None of the cited documents discloses all features of Claims 1 through 5. Therefore, the object of these claims appears to be novel.
2. The most proximate related art with regard to the object of Claims 1 through 5 is described in DE-3232160 (D1). It includes a method (and a device) for signaling information relevant for the operation of a motor vehicle, this information being formed by an operating point of a drive unit of the vehicle and a haptic signal being formed at a control element of the vehicle, an accelerator pedal in particular, as a function of the operating point.
3. The problem with this method is that the accelerator pedal's restoring force is automatically adjusted within the range of the entire pedal path as a function of the measured engine torque. An instantaneous unfavorable consumption value is also haptically indicated, even when the targeted variable is favorable for consumption.
4. To solve this problem, the present application proposes indicating an optimum operating point of the drive unit via the haptic signal, this operating point being determined as a function of an output variable (such as a setpoint torque) to be released by the drive unit.

This makes a foresighted haptic signal possible which does not follow the instantaneous value of the output variable but rather its value to be set.

5. These features are not known from the cited documents and it does not appear to be obvious that they will be adopted for the method known from document D1. Therefore, the object of Claim 1 appears to represent an inventive step.

6. Based on analog considerations, the object of independent Claim 5, which describes a device for signaling, is also novel and inventive.

7. Dependent Claims 2 through 4 are dependent on Claim 1. Consequently, the object of these claims is also novel and inventive. Thus, Claims 1 through 5 appear to meet the criteria specified in Article 33 (1) - (3) PCT.

New Claims 1 through 5

1. A method for signaling information relevant for the operation of a motor vehicle, this information being formed by an operating point of a drive unit of the vehicle and a haptic signal being formed at a control element (1) of the vehicle, an accelerator pedal in particular, as a function of the operating point, wherein an optimum operating point of the drive unit, an optimum engine efficiency in particular, is indicated by the haptic signal, and the optimum operating point is determined as a function of an output variable, a setpoint torque in particular, to be output by the drive unit and as a function of an instantaneous operating variable of the drive unit, an engine speed in particular.
2. The method as recited in Claim 1, wherein the output variable to be output by the drive unit is determined as a function of a position of the control element (1).
3. The method as recited in one of the preceding claims, wherein haptic signaling starts approximately when the optimum operating point is reached.
4. The method as recited in one of the preceding claims, wherein the haptic signal is formed by a restoring force acting on the control element (1).
5. A device (5) for signaling information relevant for the operation of the vehicle, means (20) being provided for forming this information via an operating point of a drive unit of the vehicle and means (10) being provided which form a haptic signal at a control element (1) of the vehicle, an

accelerator pedal in particular, as a function of the operating point,

wherein an optimum operating point of the drive unit, an optimum engine efficiency in particular, is indicated by the haptic signal, and means (60) are provided which determine the optimum operating point as a function of an output variable, a setpoint torque in particular, to be output by the drive unit and as a function of an instantaneous operating variable of the drive unit, an engine speed in particular.